SAMSUNG

NL22B

User Manual

The color and the appearance may differ depending on the product, and the specifications are subject to change without prior notice to improve the performance.

BN46-00298A-01

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Chapter. 1

Before Using the Product

Copyright

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- An administration fee may be charged if either
  - (a) an engineer is called out at your request and there is no defect in the product (i.e, where you have failed to read this user manual).
  - (b) you bring the unit to a repair center and there is no defect in the product (i.e, where you have failed to read this user manual).
- The amount of such administration charge will be advised to you before any work or home visit is carried out.

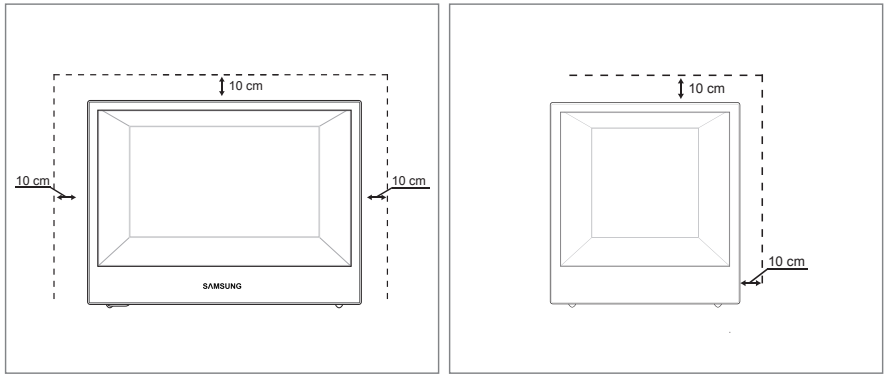
TruSurround XT, SRS and the symbol are trademarks of SRS Labs, Inc.

TruSurround XT technology is incorporated under license from SRS Labs, Inc.

Securing the Installation Space

Ensure some space around the product for ventilation. An internal temperature rise may cause fire and damage the product. Be sure to allow the amount of space as shown below or greater when installing the product.

- The exterior may differ depending on the product.



Precautions for storage

High-glossy models can develop white stains on the surface if an ultrasonic wave humidifier is used nearby.

- Contact your nearest Samsung Customer Service Center if you want to clean the inside of the product (Service fee will be charged.)

Safety Precautions

Caution

Do not open the cover. You may suffer an electric shock.
The components inside this product must not be repaired by home users.
Contact a technician for repair.

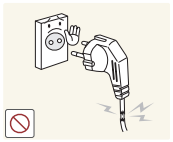
Symbols

Warning	A serious or fatal injury may result if instructions are not followed.
Caution	Personal injury or damage to properties may result if instructions are not followed.
	Activities marked by this symbol are prohibited.
	Instructions marked by this symbol must be followed.

Electricity and Safety

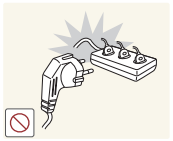
- The following images are for reference only. Real-life situations may differ from what is shown in the images.

Warning



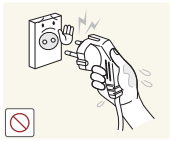
Do not use a damaged power cable or plug, or a loose power socket.

- An electric shock or fire may result.

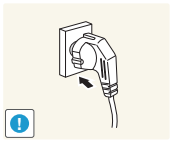


Do not use multiple products with a single power socket.

- Otherwise, the socket may cause a fire.

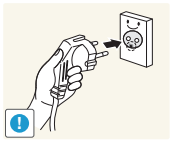


Do not touch the power cable with wet hands.
Otherwise, an electric shock may result.



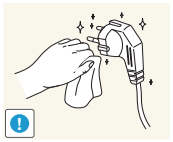
Insert the power cable all the way in so it is not loose.

- An unsecure connection may cause a fire.



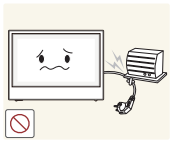
Be sure to plug the power cable into a grounded power socket. (type 1 insulated devices only).

- An electric shock or injury may result.



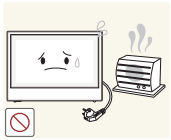
Clean any dust around the pins of the power cable or the power outlet using a dry cloth.

- A fire may result.



Do not bend or pull the power cable with force. Also, do not place a heavy object on the power cable.

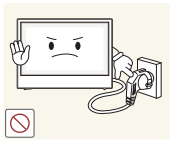
- Damage to the cord may result in a fire or electric shock.



Do not place the power cable or product near heat sources.

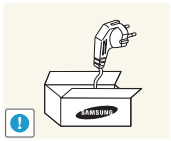
- A fire or electric shock may result.

Caution



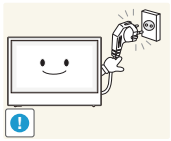
Do not disconnect the power cable while the product is being used.

- The product may become damaged by an electric shock.



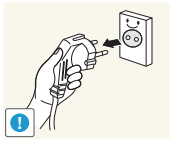
Only use the power cable provided with your product by Samsung. Do not use the power cord with other products.

- A fire or electric shock may result.



Keep the power socket where the power cable is connected unobstructed.

- In the event of a problem with the product, you must disconnect the power cable to cut the power supply to the product.



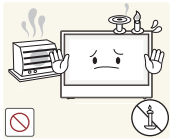
Hold the plug when disconnecting the power cable from the power socket.

- A fire or electric shock may result.

Installation and Safety

- The following images are for reference only. Real-life situations may differ from what is shown in the images.

Warning

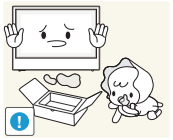


DO NOT PLACE CANDLES,INSEC T REPELLAN TS OR CIGARETTES ON TOP OF TH E PR ODUCT.DO NOT I NSTALL THE PRO DUCT NEAR HEAT SO URC ES .

- A fire may resullt.

Do not install the product in poorly ventilated spaces such as a bookcase or closet.

- An increased internal temperature may cause a fire.

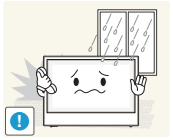


Keep the plastic packaging out of the reach of children.

- Children may suffocate.

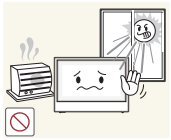
Do not install the product on an unstable or vibrating surface (insecure shelf, sloped surface, etc.)

- The product may fall and become damaged and/or cause an injury.
- Using the product in an area with excess vibration may damage the product or cause a fire.



Do not install the product in a vehicle or a place exposed to dust, moisture (water drips, etc.), oil, or smoke.

- A fire or electric shock may result.



Do not expose the product to direct sunlight, heat, or a hot object such as a stove.

The product lifespan may be reduced or a fire may result.

Do not install the product within the reach of young children.

The product may fall and injure children.

Edible oil, such as soybean oil, can damage or deform the product. Do not install the product in a kitchen or near a kitchen counter.

Caution

When installing the product on a cabinet or shelf, make sure that the bottom edge of the front of the product is not protruding.

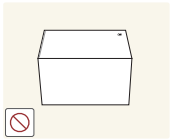
- The product may fall and break or cause a personal injury.
- Install the product only on cabinets or shelves of the right size.

Installing the product in an unusual place (a place exposed to a lot of fine particles, chemical substances or extreme temperatures, or an airport or train station where the product should operate continuously for an extended period of time) may seriously affect its performance.

- Be sure to consult Samsung Customer Service Center if you want to install the product at such a place.

Be careful not to drop the product when moving it. Place the product down gently and carefully.

- Product failure or personal injury may result.



Do not set down the product on its front.

- The screen may become damaged.

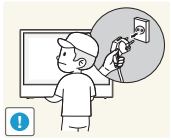
Operation and Safety

The following images are for reference only. Real-life situations may differ from what is shown in the images.

Warning

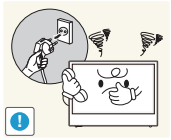
There is a high voltage inside the product. Never disassemble, repair or modify the product yourself.

- A fire or electric shock may result.
- Contact Samsung Customer Service Center for repairs.



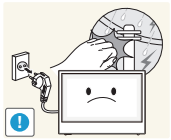
Before moving the product, turn off the power switch and disconnect the power cable and all other connected cables.

- Damage to the cord may result in a fire or electric shock.



If the product generates abnormal sounds, a burning smell or smoke, disconnect the power cable immediately and contact Samsung Customer Service Center.

- An electric shock or fire may result.

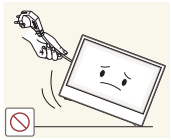


If there is a thunderstorm or lightning strike, turn off the power and disconnect the power cable.

- A fire or electric shock may result.

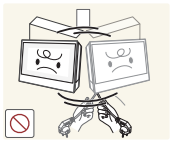
If the product is dropped or the outer case is damaged, turn off the power switch and disconnect the power cable. Then contact Samsung Customer Service Center.

- Continued use can result in a fire or electric shock.



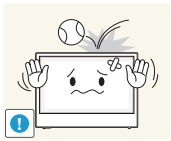
Do not pull on the product holding only the power cable or any other cable.

- Product failure, an electric shock or fire may result from a damaged cable.



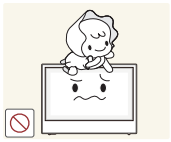
Do not lift or move the product by pulling the power cable or any cable.

- Product failure, an electric shock or fire may result from a damaged cable.



Do not drop objects on the product or apply impact.

- A fire or electric shock may result.



Do not let children hang from the product or climb on top of it.

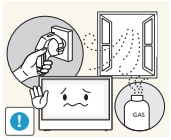
- Children may become injured or seriously harmed.

Do not leave heavy objects or items that children like (toys, sweets, etc.) on top of the product.

- The product or heavy objects may fall as children try to reach for the toys or sweets resulting in a serious injury.

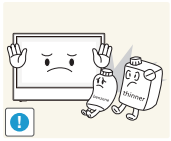
Do not place objects containing liquid (vases, pots, bottles, etc) or metallic objects on top of the product.

- Be sure to power off the product and disconnect the power cable when water or other foreign substances have entered the product. Then contact Samsung Customer Service Center.
- Product failure, an electric shock or fire may result.



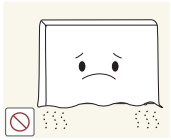
If a gas leakage is found, do not touch the product or power cable. Also, ventilate the area immediately.

- Sparks can cause an explosion or fire.



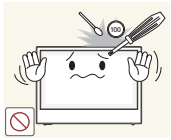
Do not use or keep combustible spray or an inflammable substance near the product.

- An explosion or fire may result.



Ensure the vents are not blocked by tablecloths or curtains.

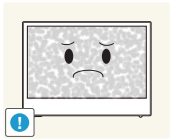
- An increased internal temperature may cause a fire.



Do not insert metallic objects (chopsticks, coins, hairpins, etc) or objects that burn easily (paper, matches, etc) into the product (via the vent or input/output ports, etc).

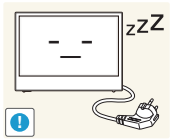
- Be sure to power off the product and disconnect the power cable when water or other foreign substances have entered the product. Then contact Samsung Customer Service Center.
- Product failure, an electric shock or fire may result.

Caution



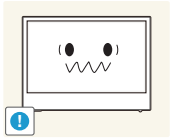
Leaving the screen fixed on a stationary image for an extended period of time may cause afterimage burn-in or defective pixels.

- If you are not going to use the product for an extended period of time, activate power-saving mode or a moving-picture screen saver.



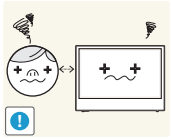
Disconnect the power cable from the power socket when not using the product for an extended period of time (vacation, etc.).

- Dust accumulation combined with heat can cause a fire, electric shock or electric leakage.

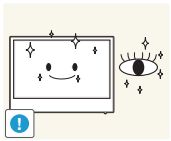


Use the product at the recommended resolution and frequency.

- Your eyesight may deteriorate.



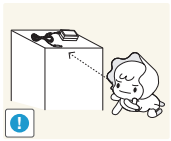
Looking at the screen too close for an extended period of time can deteriorate your eyesight.



Rest your eyes for more than 5 minutes for every 1 hour of product use.

- Eye fatigue will be relieved.

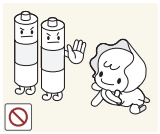
The front of the product may get hot when turned on for a long period of time. Take extra caution.



Store small accessories out of the reach of children.

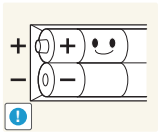
Do not place heavy objects on the product.

- Product failure or personal injury may result.



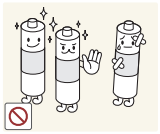
Be careful that children do not place the battery in their mouths when removed from the remote control. Place the battery in a location that children or infants cannot reach.

If children have had the battery in their mouths, consult your doctor immediately.



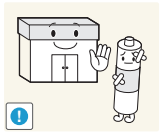
When replacing the battery, insert it with the right polarity (+, -).

- Otherwise, the battery may become damaged or it may cause fire, personal injury or damage due to leakage of the internal liquid.



Use only the specified standardized batteries, and do not use a new battery and a used battery at the same time.

Otherwise, the batteries may be damaged or cause fire, personal injury or damage due to a leakage of the internal liquid.



The batteries (and rechargeable batteries) are not ordinary refuse and must be returned for recycling purposes. The customer is responsible for returning the used or rechargeable batteries for recycling.

- The customer can return used or rechargeable batteries to a nearby public recycling center or to a store selling the same type of the battery or rechargeable battery.

Precautions for Using the Product

- The following images are for reference only. Real-life situations may differ from what is shown in the images.

Do not move the product with an object inside.

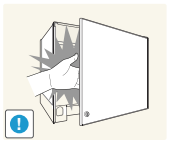
- The object may get damaged.

Do not move the product with the door open with an object inside.

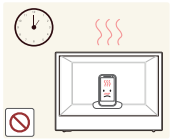
- The object may fall and get damaged.

When moving the product, be careful to ensure the product does not bump into any object.

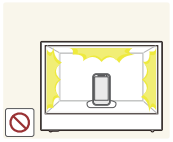
- A large portion of the product surface is made of glass. The glass is fragile and susceptible to breaking if care is not taken.



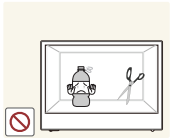
Open or close the product door with caution. Body parts may get caught by the door causing injury.



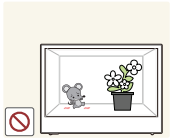
Objects in the product may get hot due to the built-in LED when the product is turned on for a long period of time. Take extra caution.



Note that there is risk of deformation and discoloration to an object placed inside the product for display for an extended period of time. This may occur due to light and heat from the LED source.



Do not expose the product to food or any sort of wet materials, liquids or sharp objects.



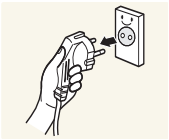
Do not put an animal or plant in the product.

Cleaning

- The following images are for reference only. Real-life situations may differ from what is shown in the images.

Exercise care when cleaning as the panel and exterior of advanced LCDs are easily scratched.

Take the following steps when cleaning.



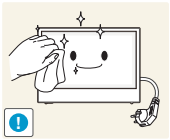
1. Power off the product.

2. Remove the power cable from the product.

NOTE

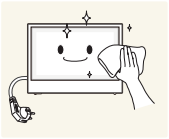
Hold the power cable by the plug and do not touch the cable with wet hands.

Otherwise, an electric shock may result.

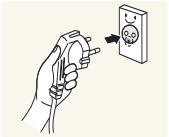


3. Wipe the product screen using a clean, soft and dry cloth.

- Do not use detergents that contain alcohol, solvent or surface-active agents.
- Do not spray water or detergent directly on the product.



4. To clean the exterior of the product, use a moist soft cloth and wring thoroughly before wiping the exterior.



5. After cleaning the product, connect the power cable to the product.

6. Power on the product to use it.

Chapter. 2

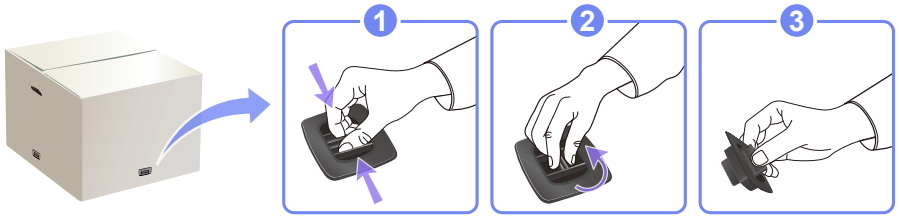
Preparation

Checking the Contents

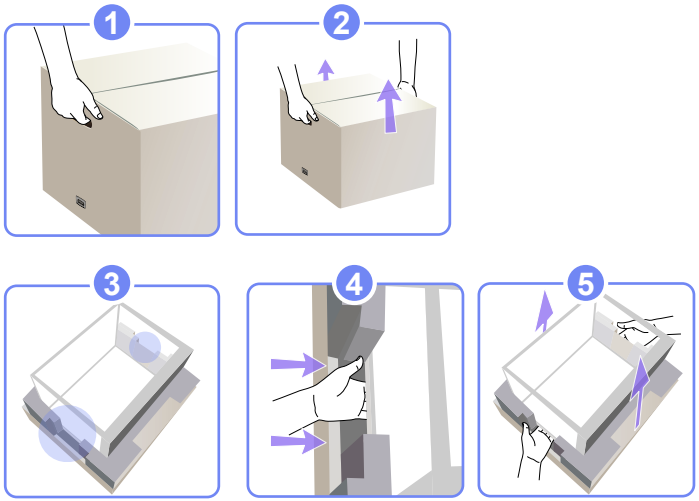
Removing the Packaging

- The appearance of the actual product may differ from the images shown.

1. Remove the black locking device at the bottom of the box.



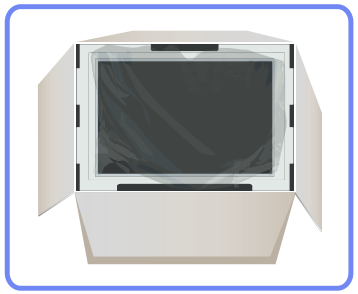
2. Using the grooves in the box, lift and remove the top of the box.



3. Check the components and remove the styrofoam and plastic bag.

NOTE

- The appearance of the actual product may differ from the image shown.
- This image is for reference only.



4. Store the box in a dry area so that it can be used when moving the product in the future.

Checking the Components

- Contact the vendor where you purchased the product if any components are missing.
- The appearance of the components and items sold separately may differ from the image shown.

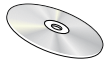
Components

NOTE

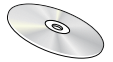
Components may vary depending on the country.

Quick setup guide

Warranty card (Not available in Some locations)



User manual



MagicInfo Software DVD

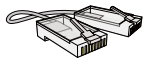
Power cable

Remote Control

Batteries (Not available in Some locations)

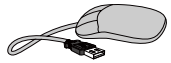
Keys

Items sold separately

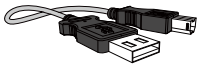


LAN cable

USB keyboard



USB mouse

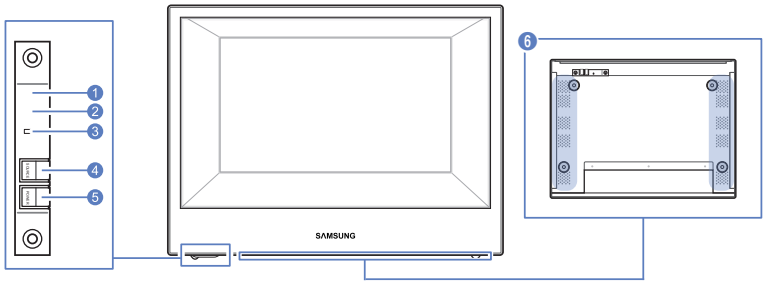


USB cable

Parts

External Sensor

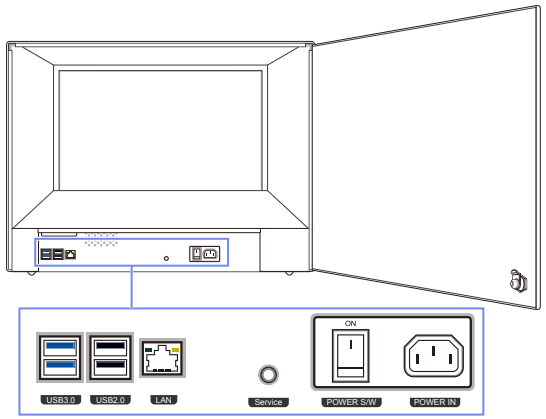
- The external sensor consists of a remote control sensor, light sensor, and function keys.
- The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.



	Icons	Description
1	Remote-control sensor	Aim the remote control towards this spot on the LCD Display. **NOTE** Using other display devices in the same space as the remote control of this product can cause the other display devices to be inadvertently controlled.
2	Brightness sensor	Automatically detects the intensity of ambient light around a selected display and adjusts the screen brightness.
3	Power lamp	Turns on in power-on mode and blinks green in power-saving mode.
4	**SOURCE**	Not enabled on this product
5	**POWER**	Power on or off the product.
6	Air vent	-

Rear View

The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.

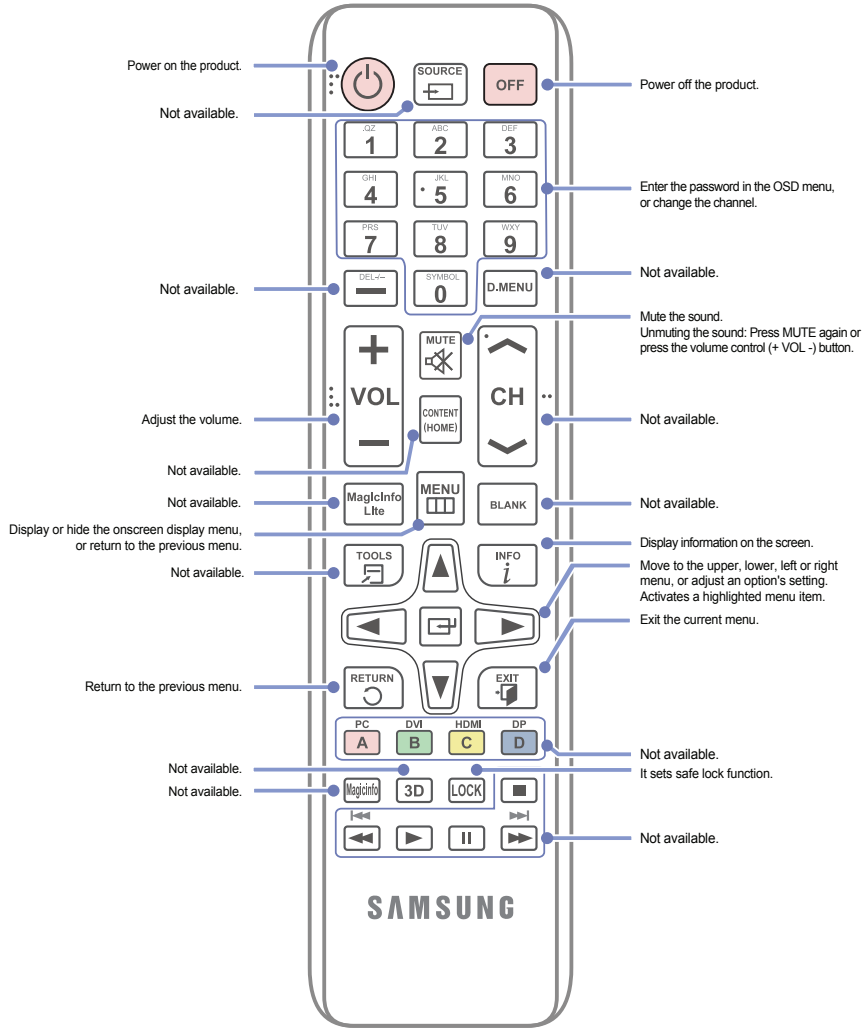


Port	About ports
USB 3.0, USB 2.0	Connect to a USB device such as a keyboard, mouse or speaker.
LAN	Connect to a network using a LAN cable.
Service	Dedicated to service technicians.
POWER S/W	Power switch
POWER IN	Power port

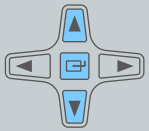
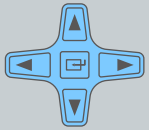
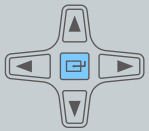
Remote Control

NOTE

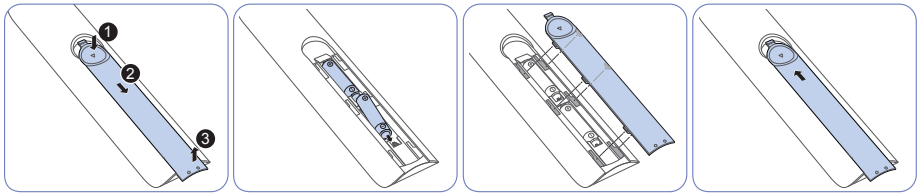
- Using other display devices in the same space as the remote control of this product can cause the other display devices to be inadvertently controlled.
- Remote control button functions may differ for different products.



Adjusting the OSD with the Remote Control

	Open the OSD menu.
	Select from Picture, Sound, Setup in the displayed OSD menu screen.
	Change settings as desired.
	Finish setting.
	Close the onscreen display (OSD) menu.

To place batteries in the remote control:

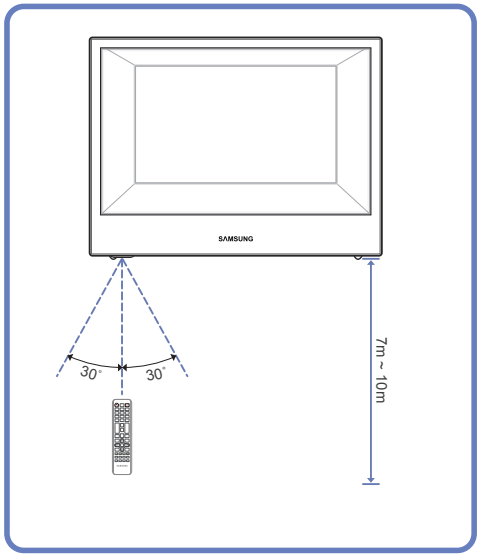


NOTE

When purchasing a new remote control, batteries are not included.

Remote Control Reception Range

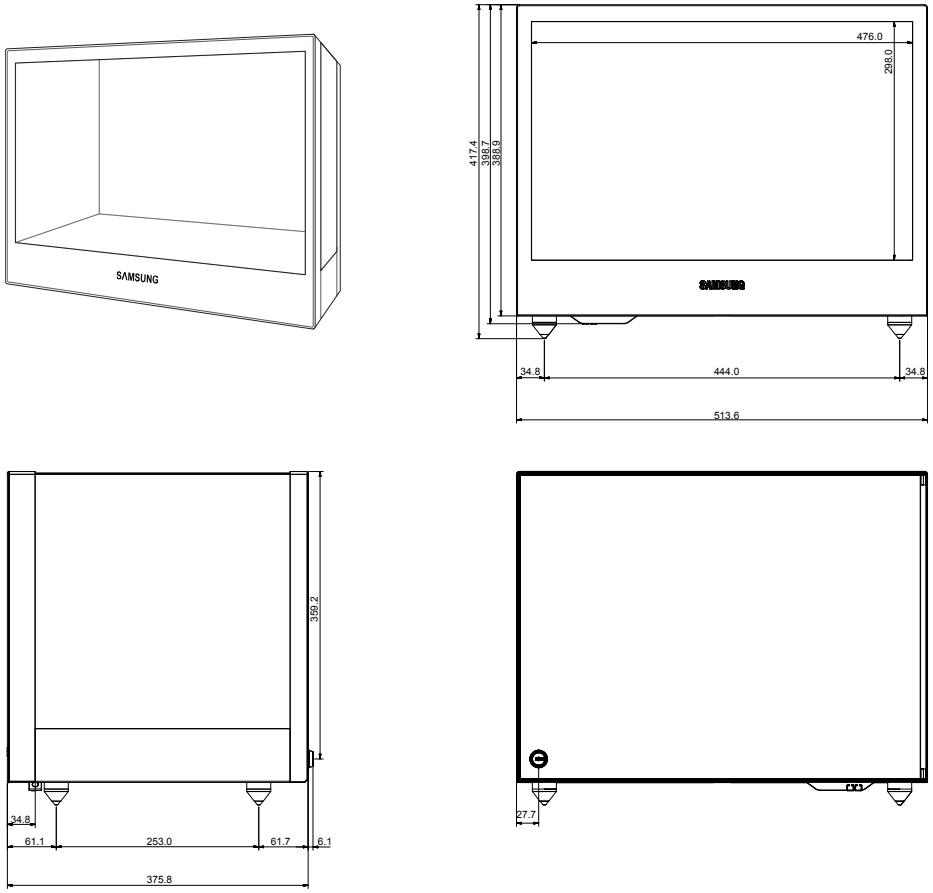
Use the remote control within 7 m to 10 m from the sensor on the product at an angle of 30° from the left and right.



NOTE

- Keep used batteries out of the reach of children while they are waiting to be collected and disposed of.
- Do not use a new and used battery together. Replace both batteries at the same time.
- Remove batteries when the remote control is not to be used for an extended period of time.

Product dimensions



NOTE

- Dimensions are subject to change without notice.
- Refer to the dimensions prior to performing installation of your product. Not responsible for typographical or printed errors.

Chapter. 3

Connections

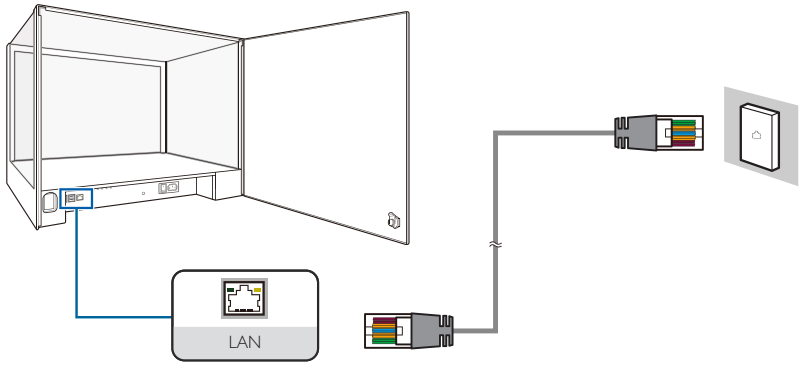
Using the Product

Pre-connection Checkpoints

Do not connect the power cable until all connections are completed.

Connecting the power cable during connection may damage the product.

LAN Connection

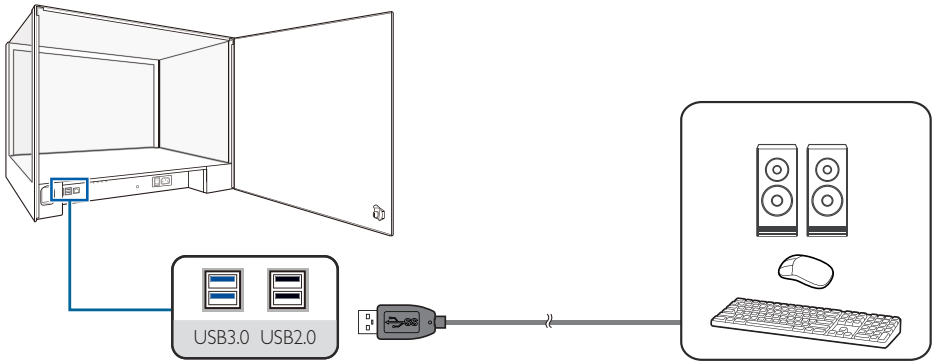


1. Connect the [**LAN**] port at the back of the product to a LAN using the LAN cable.

NOTE

Use Cat 5 or 6 (STP Type*) cable for the connection. (*Shielded Twisted Pair)

Connecting to a USB Device

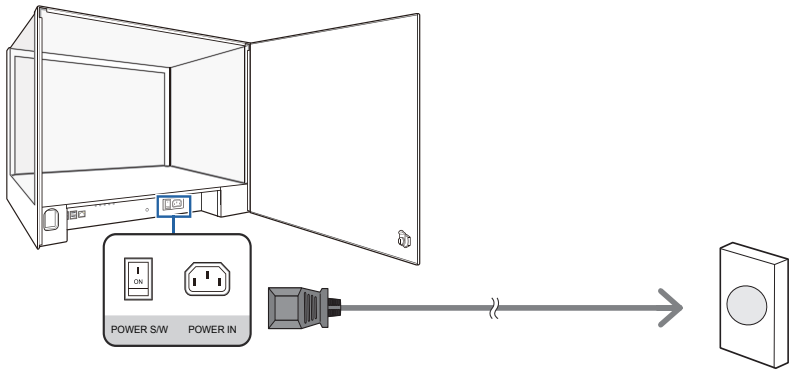


1. Connect a USB device, such as a keyboard, mouse or speaker, to [**USB**] at the back.

NOTE

To detect and start a source device faster, connect the device to the blue USB 3.0 port on the product.

Connecting the Power



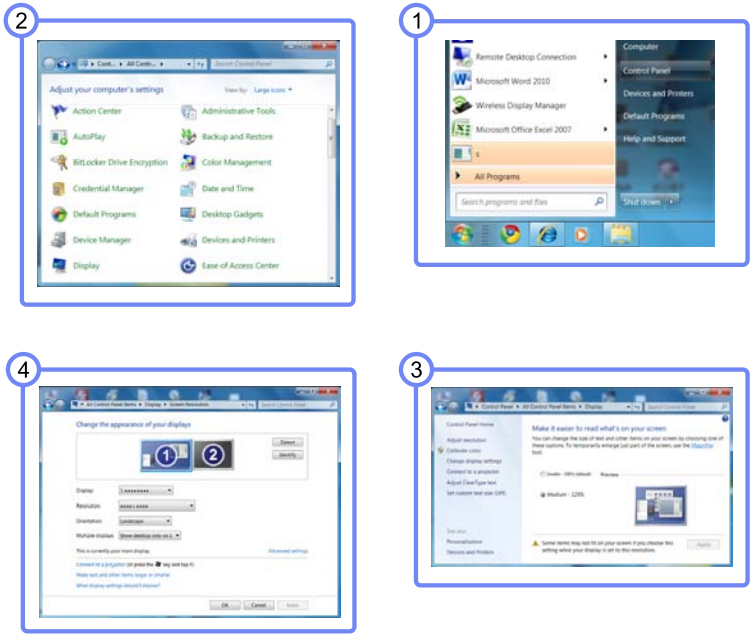
1. Connect the power cord to the product and a power socket.

Changing the Resolution

NOTE

- Adjust the resolution and refresh rate in Control Panel on your PC to obtain optimum picture quality.
- The picture quality of TFT-LCDs may degrade if the optimum resolution is not selected.

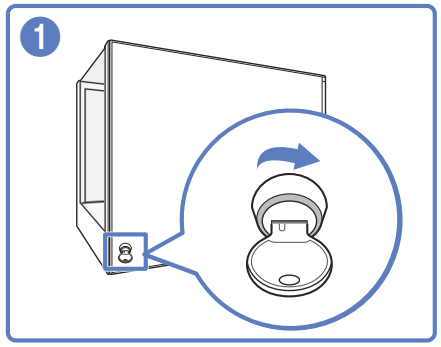
Go to **Control Panel** ⟶ **Display** ⟶ **Screen Resolution** and change the resolution.



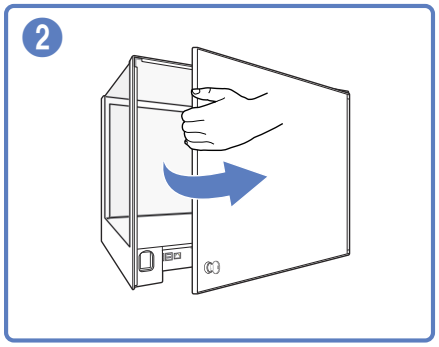
Putting in Devices for Display in the NL22B

NOTE

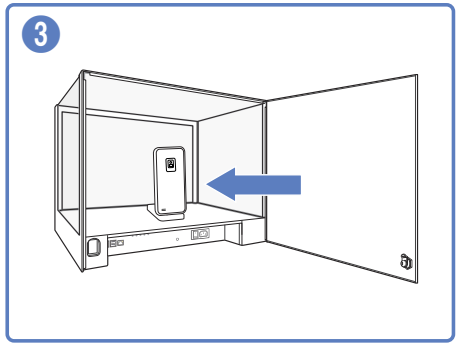
- Door open angle: ≤ 100˚
- Maximum live load of the display panel: less than 20kg (15kg or lower recommended)
- If you place a bulky object inside the product, the light source may be blocked causing the inside and screen of the product to be dark.
- The key is only provided to open or close the door. It is not intended to prevent theft. This applies to all products.



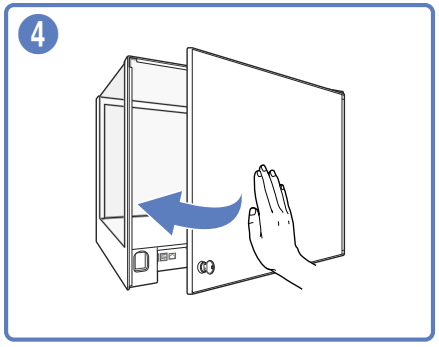
1 Insert the key into the slot and turn the key in the direction of the arrow as shown in the image.



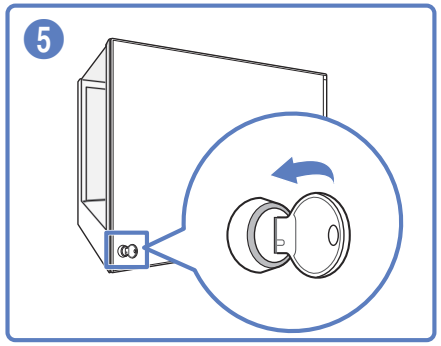
2 Open the door at the back of the product in the direction of the arrow.



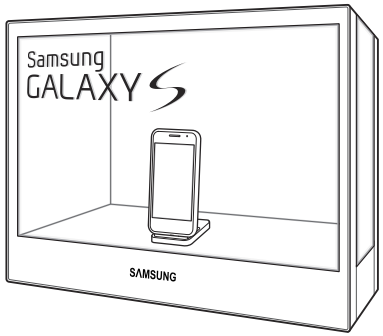
3 Put in a device or accessories to display in the product.



4 Close the door at the back.



5 Turn the key in the direction of the arrow.



Playing Image or Video files from USB Memory

MagicInfo-i Premium is enabled by default on this product. Image or video files play automatically from a USB memory device connected.

- Refer to the provided DVD for further details on using **MagicInfo-i Premium Edition**.

Create a **MagicInfoSlide** folder as a root folder on the USB memory.
E.g. **G:\MagicInfoSlide**

1. Copy the files you want to play to the **MagicInfoSlide** folder.
2. Connect the USB memory to the USB port on the product.
3. The files under the **MagicInfoSlide** folder play automatically in sequence.

- To disable auto playback mode, click the **MagicInfo-i** icon [ ] on the desktop and select "**Select Later**."

NOTE

- After a USB memory device is connected, the files in the USB memory are copied to the hard disk of the product before playing. As a result, there may be a slight delay when the files play.
  (Save directory:**D:\Repository\Contents\MagicInfoSlide)**
- Files on the hard disk are copied over with more up-to-date files on a connected USB memory each time the USB memory device is connected.
- Content files copied and saved to the hard disk automatically play immediately after the product is turned off and on again. To play content that was stopped by pressing the ESC button, click "**Run**" on **MpAgent**( ) in the Windows taskbar.
- To disable the function that automatically copies files to the hard disk, go to <**Configuration** - **Advanced** - **Schedule** - **Removable Disk**> in **MagicInfo-i Premium Client** and select <**Play directly from a removable disk**>.

Chapter. 4

Screen Setup

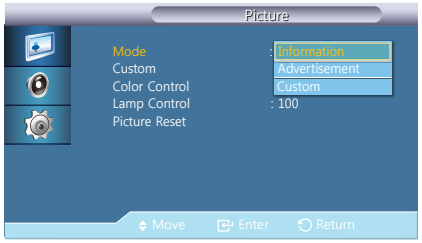
Mode

Configure the Picture settings (Brightness, Tint, etc.).

The layout of the Picture menu options may vary depending on the product.

Configuring Mode

1. Press [▥] on the product.
2. Move to Picture using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Mode using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.



- Information: This mode reduces eye fatigue and is suitable for displaying information to the public.
- Advertisement: This mode is suitable for displaying video content and indoor/outdoor advertisements.
- Custom: Customize the screen settings as desired.

4. Configure the settings as required using the [∧/∨] buttons.

Custom

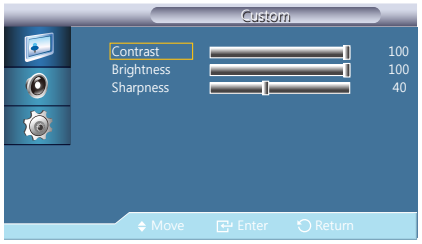
Customize the displayed colors on the screen as desired.

NOTE

If you adjust screen using Custom function, Mode will turn to Custom mode.

Configuring Custom

1. Press [▥] on the product.
2. Move to Picture using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Custom using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.



4. Adjust the Contrast, Brightness, and Sharpness settings using the [</>] buttons.

Contrast: Adjusts the Contrast.

Brightness: You can adjust the general brightness of the picture.

Sharpness: Adjusts the Sharpness.

Color Control

Adjusts individual Red, Green, Blue color balance. (Range: 0~100)

A higher value will increase the intensity of the color.

Configuring Color Control

1. Press [▥] on the product.
2. Move to Picture using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Color Control using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.

4. Adjust the Color Control setting using the [</>] buttons.

Lamp Control

Lamp Control is used to adjust the backlight to reduce power consumption.

Changing the Lamp Control Setting

1. Press [▥] on the product.
2. Move to Picture using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Lamp Control using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.

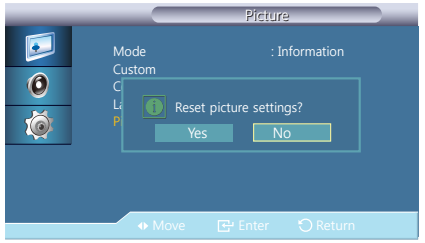
4. Adjust the Lamp Control setting using the [</>] buttons.

Picture Reset

Reset the screen settings.

Restoring the default settings (Picture Reset)

1. Press [▥] on the product.
2. Move to Picture using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Picture Reset using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.



4. Press [</>] to move to the option you want and press [↵].
5. The selected option will be applied.

Chapter. 5

Configuring the Sound Settings

Mode

Configure the sound settings for the product.

Select a sound mode according to the type of audio you are listening to such as music, movies, and news.

Configuring Mode

1. Press [▥] on the product.
2. Move to Sound using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Mode using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.

- Standard: Provides sound suitable for any type of content.
- Music: Provides sound close to the original experience.
- Movie: Provides a grand sound experience.
- Speech: Hear voices clearly.
- Custom: Selects Custom if you want to adjust the settings according to your personal preferences.

4. Configure the settings as required using the [∧/∨] buttons.
5. The selected option will be applied.

Custom

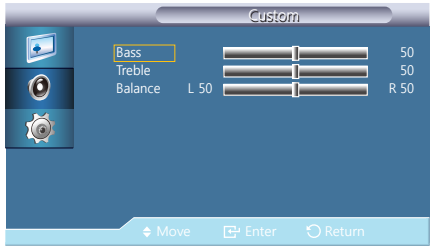
The sound settings can be adjusted to suit your personal preferences.

NOTE

- You can hear the sound even when sound value is set to 0.
- If you adjust sound using Custom function, Mode will turn to Custom mode.

Configuring Custom

1. Press [▥] on the product.
2. Move to Sound using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Custom using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.



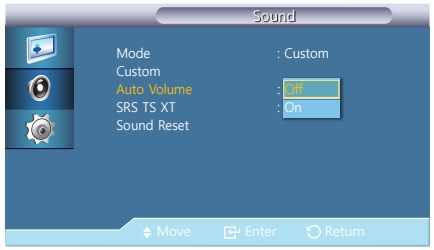
4. Adjust the Bass, Treble, and Balance settings using the [</>] buttons.
   - Bass: Emphasizes low frequency audio.
   - Treble: Emphasizes high frequency audio.
   - Balance: Allows you to Adjusts the sound balance between the left and right speakers.
5. The selected option will be applied.

Auto Volume

The volume of audio input may vary depending on the channel. This option automatically equalizes audio input from all channels.

Configuring Auto Volume

1. Press [▥] on the product.
2. Move to Sound using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Auto Volume using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.



4. Press [∧/∨] to move to the option you want and press [↵].
5. The selected option will be applied.

SRS TS XT

SRS TS XT allows you to enjoy the grand and vivid sound quality of 5.1-channel speakers using two speakers. TruSurround XT delivers a compelling, virtual surround sound experience through any two-speaker playback system, including internal television speakers. It is fully compatible with all multichannel formats.

Configuring SRS TS XT

1. Press [▥] on the product.
2. Move to Sound using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to SRS TS XT using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.

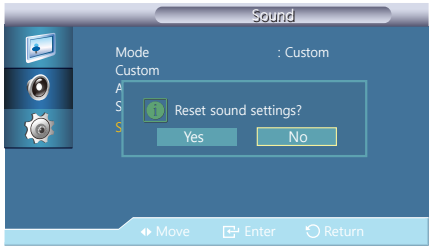
4. Press [∧/∨] to move to the option you want and press [↵].
5. The selected option will be applied.

Sound Reset

Return the sound settings to the default factory settings.

Restoring the default settings (Sound Reset)

1. Press [▥] on the product.
2. Move to Sound using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Sound Reset using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.



4. Press [∧/∨] to move to the option you want and press [↵].
5. The selected option will be applied.

Chapter. 6

Setup and Reset

Language

- Set the menu language.
- It will not be applied to other functions on your PC.

NOTE

A change to the language setting will only be applied to the onscreen menu display.

Configuring Language

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [⏎] button.
3. Move to Language using the [∧/∨] buttons. Next, press the [⏎] button.
   The following screen will appear.

4. Press [∧/∨] to move to the option you want and press [⏎].
5. The selected option will be applied.

Time

Clock Set, Sleep Timer, Timer1 / Timer2 / Timer3, and Holiday Management can be set.

Changing the Setting for Clock Set

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [⏎] button.
3. Move to Time using the [∧/∨] buttons. Next, press the [⏎] button.
4. Move to Clock Set using the [∧/∨] buttons. Next, press the [⏎] button.
   The following screen will appear.

Clock Set: Set the current date and time.

5. Configure the settings as required using the [∧/∨] buttons.

Setting Sleep Timer

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Time using the [∧/∨] buttons. Next, press the [↵] button.
4. Move to Sleep Timer using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.

- Sleep Timer: Set the product to automatically turn off after a specified period of time. (30 min / 60 min / 90 min / 120 min / 150 min /180 min / Off)

5. Press [∧/∨] to move to the option you want and press [↵].
6. The selected option will be applied.

Configuring Timer1/Timer2/Timer3

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Time using the [∧/∨] buttons. Next, press the [↵] button.
4. Move to Timer1 using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.

- On Time
- Off Time
- Volume: Specify the volume when the product turns on.
- Source: Select an input source.
- Holiday: Select Apply to disable the timer on holidays and Don't Apply to enable the timer on holidays.
- Repeat: Available selections include Once, EveryDay, Mon~Fri, Mon~Sat, Sat~Sun, and Manual.
  - Once: The Timer goes off only once.
  - EveryDay: The Timer repeats daily.
  - Mon~Fri: The Timer repeats from Monday through Friday.
  - Mon~Sat: The Timer repeats from Monday through Saturday.
  - Sat~Sun: The Timer goes off on Saturday and Sunday.
  - Manual: Select a day of the week you want the Timer to go off.

NOTE

- Only enabled when the clock is set using the Clock Set menu.
- The Manual option allows you to select a day of the week.

5. Press [∧/∨] to move to the option you want and press [↵].

6. The selected option will be applied.

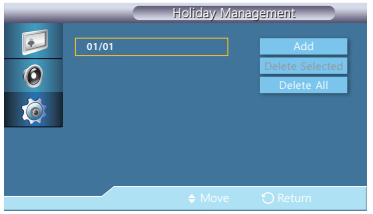
Setting Holiday Management

1. Press [▥] on the product.

2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.

3. Move to Time using the [∧/∨] buttons. Next, press the [↵] button.

4. Move to Holiday Management using the [∧/∨] buttons. Next, press the [↵] button. The following screen will appear.



- Add: You can specify holidays.
- Delete Selected: You can delete selected holidays.

  NOTE

  - Only enabled when registered holidays are selected.
  - More than one holiday can be selected and deleted.
- Delete All: You can delete all the registered holidays.

5. Press [∧/∨] to move to the option you want and press [↵].

6. The selected option will be applied.

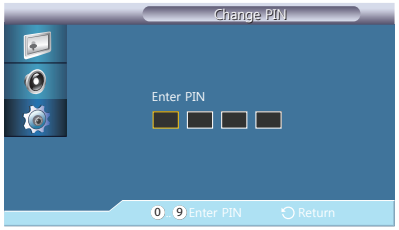
Safety Lock

The password input screen appears. Enter the 4-digit password.

The default password is "0-0-0-0."

Changing Password (Change PIN)

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Safety Lock using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.



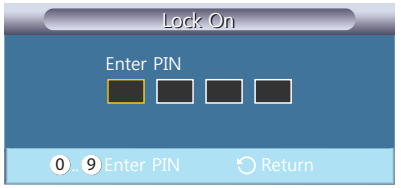
Change PIN: Change your password. Enter a new 4-digit password and then enter the new password again. The password will be changed.

NOTE

If you forgot your password, press the remote buttons **INFO** ⟶ **EXIT** ⟶ **MUTE** to reset the password to "0000."

Configuring Lock

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Safety Lock using the [∧/∨] buttons. Next, press the [↵] button.
4. Move to Lock using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.



Lock: Enable safety lock mode.

NOTE

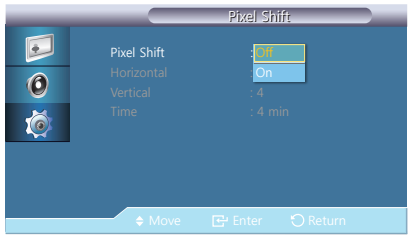
- If Lock is selected, the Lock On screen is displayed when a button on the remote control or external sensor is pressed.
- If you select Lock , the Lock mode activates. To disable the Lock mode, enter the password for Lock Off.

Safety Screen

The screen protection feature allows you to prevent image retention on the screen when a stationary image is displayed on the product screen for a long period of time.

Setting Pixel Shift

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Safety Screen using the [∧/∨] buttons. Next, press the [↵] button.
4. Move to Pixel Shift using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.

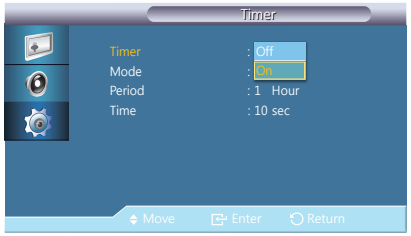


- Pixel Shift: To prevent after-images on the screen, you can use this function to have pixels move on the LCD in the Horizontal or Vertical direction.
- Horizontal: Sets how many pixels the screen moves horizontally. Five adjustment levels: 0, 1, 2, 3, and 4.
- Vertical: Sets how many pixels the screen moves vertically. Five adjustment levels: 0, 1, 2, 3, and 4.
- Time: Set the time interval for performing the horizontal or vertical movement, respectively.

5. Configure the settings as required using the [∧/∨] buttons.

Configuring Timer

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Safety Screen using the [∧/∨] buttons. Next, press the [↵] button.
4. Move to Timer using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.



- Timer: You can set the timer for Screen Burn Protection.
  The image retention elimination mode automatically deactivates after a specified period of time.
- Mode: You can change the Safety Screen Type.
  Bar / Eraser / Pixel
- Period: Use this function to set the execution period for each mode set in the timer.
- Time: Within the set period of time specify a time for execution.
  10 sec / 20 sec / 30 sec / 40 sec / 50 sec

5. Configure the settings as required using the [∧/∨] buttons.

Configuring Bar

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Safety Screen using the [∧/∨] buttons. Next, press the [↵] button.
4. Move to Bar using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.

Bar: This function prevents after-images on the screen by moving long black and white vertical lines.

5. The selected option will be applied.

Configuring Eraser

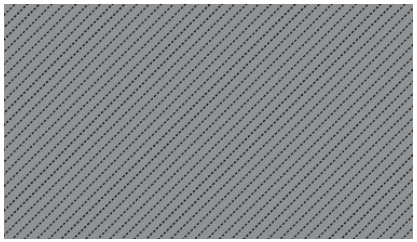
1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Safety Screen using the [∧/∨] buttons. Next, press the [↵] button.
4. Move to Eraser using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.

Eraser: This function prevents after-images on the screen by moving a rectangular pattern.

5. The selected option will be applied.

Configuring Pixel

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Safety Screen using the [∧/∨] buttons. Next, press the [↵] button.
4. Move to Pixel using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.



Pixel: This function prevents after-images by moving many pixels on the screen.

5. The selected option will be applied.

Setting Side Grey

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Safety Screen using the [∧/∨] buttons. Next, press the [↵] button.
4. Move to Side Gray using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.

Side Gray: Select the brightness of the grey color for blank parts on the screen.

5. The selected option will be applied.

Power On Adjustment

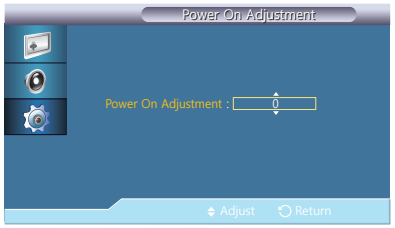
You can set the warm-up time for the screen to turn on after the power button is pressed. (Range: 0 – 50 seconds)

NOTE

A warm-up time that is too short may damage the product due to overvoltage.

Setting Power On Adjustment

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Power On Adjustment using the [∧/∨] buttons. Next, press the [↵] button. The following screen will appear.



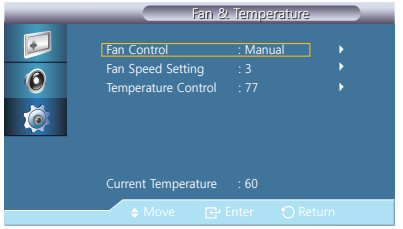
4. Adjust the Power On Adjustment setting using the [∧/∨] buttons.

Advanced Settings

Configures the settings more elaborately.

Configuring Fan & Temperature

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Advanced Settings using the [∧/∨] buttons. Next, press the [↵] button.
4. Move to Fan & Temperature using the [∧/∨] buttons. Next, press the [↵] button. The following screen will appear.



- Fan Control: Selects auto or manual for the fan speed settings.
- Fan Speed Setting: Sets the fan speed within a range of 0 and 100.
- Temperature Control: Detects the product's internal temperature and specifies the desired temperature. The product is set to 77 °C by default.

NOTE

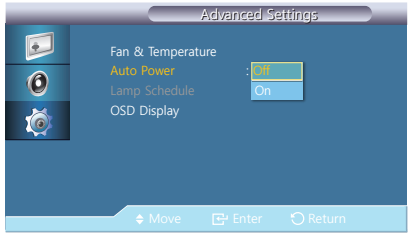
- The picture will be dimmed if the temperature exceeds the specified temperature, and the product will automatically power off to prevent overheating if the temperature keeps rising.
- It is best to use the product at temperatures 75 - 80 °C (based on ambient temperature of 40 °C).
- Refer to "Specifications" herein for details about operating conditions.

- Current Temperature: Shows the current temperature of the product.

5. Set the temperatures using the [∧/∨] buttons.

Changing the Auto Power Setting

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Advanced Settings using the [∧/∨] buttons. Next, press the [↵] button.
4. Move to Auto Power using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.



Auto Power: Set the product to automatically power on.

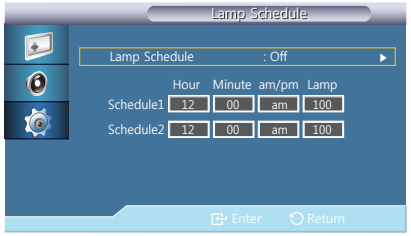
NOTE

When Auto Power is On, the product will power on automatically as soon as it is connected to power.

5. Adjust the Auto Power setting using the [∧/∨] buttons.

Setting Lamp Schedule

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Advanced Settings using the [∧/∨] buttons. Next, press the [↵] button.
4. Move to Lamp Schedule using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.



Lamp Schedule: Adjusts the luminance to a user-specified value at a specified time.

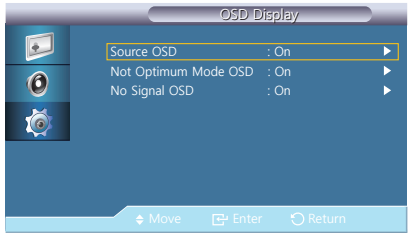
NOTE

Only enabled when the clock is set using the Clock Set menu.

5. Adjust the Lamp Schedule setting using the [∧/∨] buttons.

Changing the OSD Display Settings

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Advanced Settings using the [∧/∨] buttons. Next, press the [↵] button.
4. Move to OSD Display using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.



OSD Display: Displays or hides a menu item on the screen.

- Source OSD
- Not Optimum Mode OSD
- No Signal OSD

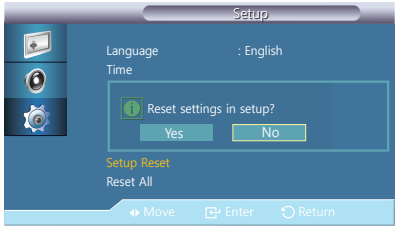
5. Configure the settings as desired using the [∧/∨] buttons.

Setup Reset

This option returns the current settings under Setup to the default factory settings.

Resetting Setup (Setup Reset)

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Setup Reset using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.



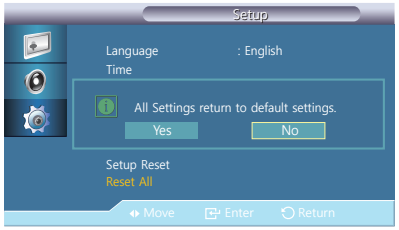
4. The selected option will be applied.

Reset All

This option returns all the current settings for a display to the default factory settings.

Resetting All Settings (Reset All)

1. Press [▥] on the product.
2. Move to Setup using the [∧/∨] buttons. Next, press the [↵] button.
3. Move to Reset All using the [∧/∨] buttons. Next, press the [↵] button.
   The following screen will appear.



4. The selected option will be applied.

Chapter. 7

Troubleshooting Guide

Requirements Before Contacting Samsung Customer Service Center

- Before calling Samsung Customer Service Center, test your product as follows.
  If the problem persists, contact Samsung Customer Service Center.

Checking the Resolution and Frequency

When a mode exceeds the supported resolution (refer to "Preset Timing Modes"), the message "Not Optimum Mode" will appear briefly.

Check the following.

Screen issue

Troubleshooting	Solutions
The power LED is off. The screen will not switch on.	Make sure that the power cable is connected.
The screen is not clear. The screen is blurry.	Set the resolution and frequency to the recommended level.
The screen is too bright. The screen is too dark.	Adjust the Brightness setting.
Screen color is inconsistent.	Adjust the COLOR settings.
The colors on the screen have a shadow and are distorted.	Adjust the COLOR settings.
White does not really look white.	Adjust the COLOR settings.
There is no image on the screen and the power LED blinks every 0.5 to 1 second.	The product is operating in power-saving mode. Press any key on the keyboard or move the mouse to return to normal operating mode.

Audio issues

Troubleshooting	Solutions
There is no sound.	Check that the source device connected to the product is powered on.
The volume is too low.	Adjust the volume. If the volume is still low after turning it up to the maximum level, adjust the volume on your PC sound card or software program.

Q & A

Question	Answer
How can I change the frequency?	Set the frequency on your graphics card. Go to **Control Panel** ⟶ **Appearance and Personalization** ⟶ **Display** ⟶ **Screen Resolution** ⟶ **Advanced settings** ⟶ **Monitor**, and adjust **Refresh rate** under **Monitor settings**.
How can I change the resolution?	Go to **Control Panel** ⟶ **Appearance and Personalization** ⟶ **Display** ⟶ **Adjust Resolution**, and adjust the resolution.
How do I set power-saving mode?	To enable power-saving mode, go to **Control Panel** ⟶ **Appearance and Personalization** ⟶ **Personalization** ⟶ **Change screen saver**.

Chapter. 8

Specifications

General

Model Name		NL22B
Panel	Image Size	22 inches (55 cm)
	Display area	473.76 mm (H) x 296.1 mm (V) / 18.65 inches (H) x 11.66 inches (V)
Synchronization	Horizontal Frequency	30 – 81 kHz
	Vertical Frequency	56 – 85 Hz
Display Color		16.7M
Resolution	Optimum Resolution	1680 x 1050 @ 60 Hz
	Maximum Resolution	1920 x 1080 @ 60 Hz
Maximum Pixel Clock		148.5 MHz
Product specifications		
APU		AMD A4-3310M Dual-core
Memory		2GB (DDR3 SO-DIMM 2GB x 1)
Storage Device		SSD 32GB
Operating System		Windows Embedded Standard 7
Graphics		Radeon HD6400 series (integrated on APU)
Power Supply		This product uses 100 to 240V. Refer to the label at the back of the product as the standard voltage can vary in different countries.
Dimensions (W x H x D) / Weight		513.6 x 417.4 x 376.0 mm / 14.8 kg 20.22 x 16.43 x 14.80 inches / 32.63 Ibs
Environmental conditions	Operating	Temperature: 32°F ~ 104°F (0°C ~ 40°C) Humidity: 10 % – 80 %, non-condensing
	Storage	Temperature: -4°F ~ 113°F (-20°C ~ 45°C) Humidity: 5 % – 95 %, non-condensing
Panel Dots (Pixels)		Due to the nature of the manufacturing of this product, approximately 1 pixel per million (1ppm) may be brighter or darker on the LCD panel. This does not affect product performance.

- No technical support will be provided if a problem occurs in any of these cases: changing to another operating system, changing to a previous version of the same operating system, installing software that is not compatible with the operating system provided. You will be charged a fee for service. No product exchange or refund is allowed.
- The above specifications are subject to change without notice to improve quality.
- This device is a Class A digital apparatus.

(USA Only)

Dispose unwanted electronics through an approved recycler.
To find the nearest recycling location, go to our website:
www.samsung.com/recyclingdirect or call, (877) 278 - 0799

CALIFORNIA USA ONLY (Applicable for networking models only.)

This Perchlorate warning applies only to primary CR(Manganese Dioxide) Lithium coin cells in the product sold or distributed ONLY in California USA
"Perchloate Material - special handling may apply, See www.dtsc.ca.gov/hazardouswaste/perchlorate."

PowerSaver

The power-saving function of this product reduces power consumption by switching off the screen and changing the color of the power LED if the product is not used for a specified period of time. The power is not turned off in power-saving mode. To switch the screen back on, press any key on the keyboard or move the mouse.

PowerSaver	Normal operation mode	Power saving mode	Power turned off (Power button)
Power lamp	On	Blinking	Off
Power Consumption	105 W	less than 3 watts	less than 1 watts

- The power consumption level can vary in different operating conditions or when settings are changed.
- To reduce the power consumption to 0 watts, turn off the power switch on the back of the product or disconnect the power cable. Be sure to disconnect the power cable when you will not be using the product for an extended period of time. To reduce the power consumption to 0 watts when the power switch is not available, disconnect the power cable.

Preset Timing Modes

- This product can be set to only one resolution for each screen size to obtain the optimum picture quality due to the nature of the panel. Therefore, a resolution other than the specified resolution may degrade the picture quality. To avoid this, it is recommended that you select the optimum resolution specified for the screen size of your product.

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
IBM, 640 x 480	31.469	59.940	25.175	-/-
IBM, 720 x 400	31.469	70.087	28.322	-/+
MAC, 640 x 480	35.000	66.667	30.240	-/-
MAC, 832 x 624	49.726	74.551	57.284	-/-
MAC, 1152 x 870	68.681	75.062	100.000	-/-
VESA, 640 x 480	37.861	72.809	31.500	-/-
VESA, 640 x 480	37.500	75.000	31.500	-/-
VESA, 800 x 600	37.879	60.317	40.000	+/+
VESA, 800 x 600	48.077	72.188	50.000	+/+
VESA, 800 x 600	46.875	75.000	49.500	+/+
VESA, 1024 x 768	48.363	60.004	65.000	-/-
VESA, 1024 x 768	56.476	70.069	75.000	-/-
VESA, 1024 x 768	60.023	75.029	78.750	+/+
VESA, 1152 x 864	67.500	75.000	108.000	+/+
VESA, 1280 x 720	45.000	60.000	74.250	+/+
VESA, 1280 x 800	49.702	59.810	83.500	-/+
VESA, 1280 x 1024	63.981	60.020	108.000	+/+
VESA, 1280 x 1024	79.976	75.025	135.000	+/+
VESA, 1440 x 900	55.935	59.887	106.500	-/+
VESA, 1600 x 900	60.000	60.000	108.000	+/+
VESA, 1680 x 1050	64.674	59.883	119.000	+/-
VESA, 1920 x 1080(RB)	66.587	59.934	138.500	+/-

- Horizontal Frequency

  The time required to scan a single line from the left to the right side of the screen is called a horizontal cycle. The reciprocal number of a horizontal cycle is called horizontal frequency. Horizontal frequency is measured in kHz.

- Vertical Frequency

  Repeating the same picture dozens of times per second allows you to view natural pictures. The repeat frequency is called "vertical frequency" or "refresh rate" and is indicated in Hz.

Chapter. 9

Appendix

Contact SAMSUNG WORLD WIDE

NOTE

If you have any questions or comments relating to Samsung products, please contact the SAMSUNG customer care Center.

NORTH AMERICA		
U.S.A	1-800-SAMSUNG (726-7864)	http://www.samsung.com
CANADA	1-800-SAMSUNG (726-7864)	http://www.samsung.com/ca (English) http://www.samsung.com/ca_fr (French)
MEXICO	01-800-SAMSUNG (726-7864)	http://www.samsung.com

LATIN AMERICA		
ARGENTINE	0800-333-3733	http://www.samsung.com
BOLIVIA	800-10-7260	http://www.samsung.com
BRAZIL	0800-124-421 4004-0000	http://www.samsung.com
CHILE	800-SAMSUNG(726-7864) From mobile 02-482 82 00	http://www.samsung.com
COLOMBIA	01-8000112112	http://www.samsung.com
COSTA RICA	0-800-507-7267	http://www.samsung.com/latin (Spanish) http://www.samsung.com/latin_en (English)
DOMINICA	1-800-751-2676	http://www.samsung.com/latin (Spanish) http://www.samsung.com/latin_en (English)
ECUADOR	1-800-10-7267	http://www.samsung.com/latin (Spanish) http://www.samsung.com/latin_en (English)
EL SALVADOR	800-6225	http://www.samsung.com/latin (Spanish) http://www.samsung.com/latin_en (English)
GUATEMALA	1-800-299-0013	http://www.samsung.com/latin (Spanish) http://www.samsung.com/latin_en (English)

HONDURAS	800-27919267	http://www.samsung.com/latin (Spanish) http://www.samsung.com/latin_en (English)
JAMAICA	1-800-234-7267	http://www.samsung.com
NICARAGUA	00-1800-5077267	http://www.samsung.com/latin (Spanish) http://www.samsung.com/latin_en (English)
PANAMA	800-7267	http://www.samsung.com/latin (Spanish) http://www.samsung.com/latin_en (English)
PERU	0-800-777-08	http://www.samsung.com
PUERTO RICO	1-800-682-3180	http://www.samsung.com
TRINIDAD & TOBAGO	1-800-SAMSUNG (726-7864)	http://www.samsung.com
VENEZUELA	0-800-100-5303	http://www.samsung.com

EUROPE		
AUSTRIA	0810 - SAMSUNG (7267864, € 0.07/ min)	http://www.samsung.com
BELGIUM	02-201-24-18	http://www.samsung.com/be (Dutch) http://www.samsung.com/be_fr (French)
BOSNIA	05 133 1999	http://www.samsung.com
BULGARIA	07001 33 11 , normal tariff	http://www.samsung.com
CROATIA	062 SAMSUNG (062 726 7864)	http://www.samsung.com
CYPRUS	8009 4000 only from landline (+30) 210 6897691 from mobile and land line	http://www.samsung.com
CZECH	800-SAMSUNG (800-726786)	http://www.samsung.com
	Samsung Electronics Czech and Slovak, s.r.o., Oasis Florenc, Sokolovská 394/17, 180 00, Praha 8	
DENMARK	70 70 19 70	http://www.samsung.com
EIRE	0818 717100	http://www.samsung.com
ESTONIA	800-7267	http://www.samsung.com
FINLAND	09 85635050	http://www.samsung.com
FRANCE	01 48 63 00 00	http://www.samsung.com
GERMANY	0180 5 SAMSUNG bzw. 0180 5 7267864* (*0,14 €/Min. aus dem dt. Festnetz, aus dem Mobilfunk max. 0,42 €/Min.)	http://www.samsung.com

GREECE	80111-SAMSUNG (80111 726 7864) only from land line (+30) 210 6897691 from mobile and land line	http://www.samsung.com
HUNGARY	06-80-SAMSUNG (726-7864)	http://www.samsung.com
ITALIA	800-SAMSUNG (726-7864)	http://www.samsung.com
LATVIA	8000-7267	http://www.samsung.com
LITHUANIA	8-800-77777	http://www.samsung.com
LUXEMBURG	261 03 710	http://www.samsung.com
MACEDONIA	023 207 777	http://www.samsung.com
MONTENEGRO	020 405 888	http://www.samsung.com
NETHERLANDS	0900-SAMSUNG (0900-7267864) (€ 0,10/Min)	http://www.samsung.com
NORWAY	815 56480	http://www.samsung.com
POLAND	0 801-1SAMSUNG (172-678) +48 22 607-93-33	http://www.samsung.com
PORTUGAL	808 20-SAMSUNG (808 20 7267)	http://www.samsung.com
ROMANIA	08008 SAMSUNG (08008 726 7864) TOLL FREE No.	http://www.samsung.com
SERBIA	0700 SAMSUNG (0700 726 7864)	http://www.samsung.com
SLOVAKIA	0800 - SAMSUNG (0800-726 786)	http://www.samsung.com
SPAIN	902 - 1 - SAMSUNG (902 172 678)	http://www.samsung.com
SWEDEN	0771 726 7864 (SAMSUNG)	http://www.samsung.com
SWITZERLAND	0848 - SAMSUNG (7267864, CHF 0.08/min)	http://www.samsung.com/ch (German) http://www.samsung.com/ch_fr (French)
U.K	0330 SAMSUNG (7267864)	http://www.samsung.com
CIS		
ARMENIA	0-800-05-555	http://www.samsung.com
AZERBAIJAN	088-55-55-555	http://www.samsung.com
BELARUS	810-800-500-55-500	http://www.samsung.com
GEORGIA	0-800-555-555	http://www.samsung.com
KAZAKHSTAN	8-10-800-500-55-500 (GSM: 7799)	http://www.samsung.com
KYRGYZSTAN	00-800-500-55-500	http://www.samsung.com
MOLDOVA	0-800-614-40	http://www.samsung.com
MONGOLIA	+7-800-555-55-55	http://www.samsung.com
RUSSIA	8-800-555-55-55	http://www.samsung.com
TADJIKISTAN	8-10-800-500-55-500	http://www.samsung.com
UKRAINE	0-800-502-000	http://www.samsung.com/ua (Ukrainian) http://www.samsung.com/ua_ru (Russian)
UZBEKISTAN	8-10-800-500-55-500	http://www.samsung.com

ASIA PACIFIC		
AUSTRALIA	1300 362 603	http://www.samsung.com
CHINA	400-810-5858	http://www.samsung.com
HONG KONG	(852) 3698 4698	http://www.samsung.com/hk (Chinese) http://www.samsung.com/hk_en (English)
INDIA	1800 1100 11 3030 8282 1800 3000 8282 1800 266 8282	http://www.samsung.com
INDONESIA	0800-112-8888 021-5699-7777	http://www.samsung.com
JAPAN	0120-327-527	http://www.samsung.com
MALAYSIA	1800-88-9999	http://www.samsung.com
NEW ZEALAND	0800 SAMSUNG (0800 726 786)	http://www.samsung.com
PHILIPPINES	1-800-10-SAMSUNG (726-7864) for PLDT 1-800-3-SAMSUNG (726-7864) for Digitel 1-800-8-SAMSUNG (726-7864) for Globe 02-5805777	http://www.samsung.com
SINGAPORE	1800-SAMSUNG (726-7864)	http://www.samsung.com
TAIWAN	0800-329-999 0266-026-066	http://www.samsung.com
THAILAND	1800-29-3232 02-689-3232	http://www.samsung.com
VIETNAM	1 800 588 889	http://www.samsung.com

MIDDLE EAST		
BAHRAIN	8000-4726	http://www.samsung.com/ae (English) http://www.samsung.com/ae_ar (Arabic)
EGYPT	08000-726786	http://www.samsung.com
IRAN	021-8255	http://www.samsung.com
JORDAN	800-22273 065777444	http://www.samsung.com
KUWAIT	183-2255	http://www.samsung.com/ae (English) http://www.samsung.com/ae_ar (Arabic)
MOROCCO	080 100 2255	http://www.samsung.com
OMAN	800-SAMSUNG(726-7864)	http://www.samsung.com/ae (English) http://www.samsung.com/ae_ar (Arabic)
SAUDI ARABIA	9200-21230	http://www.samsung.com/ae (English) http://www.samsung.com/ae_ar (Arabic)
TURKEY	444 77 11	http://www.samsung.com
U.A.E	800-SAMSUNG (726-7864)	http://www.samsung.com

AFRICA		
ANGOLA	91-726-7864	http://www.samsung.com
BOTSWANA	0800-726-000	http://www.samsung.com
CAMEROON	7095- 0077	http://www.samsung.com
COTE D' IVOIRE	8000 0077	http://www.samsung.com
GHANA	0800-10077 0302-200077	http://www.samsung.com
KENYA	0800 724 000	http://www.samsung.com
NAMIBIA	8197267864	http://www.samsung.com
NIGERIA	0800-726-7864	http://www.samsung.com
SENEGAL	800-00-0077	http://www.samsung.com
SOUTH AFRICA	0860-SAMSUNG (726-7864)	http://www.samsung.com
TANZANIA	0685 88 99 00	http://www.samsung.com
UGANDA	0800 300 300	http://www.samsung.com
ZAMBIA	211350370	http://www.samsung.com

Responsibility for the Pay Service (Cost to Customers)

NOTE

When the service is requested, in spite of in warranty, we may charge you for a visit from a service technician in the following cases.

Not a product defect

Cleaning of the product, Adjustment, Explanation, Re-installation and etc.

- If a service technician gives instructions on how to use product or simply adjusts options without disassembling product.
- If a defect is caused by external environmental factors (Internet, Antenna, Wired Signal, etc.)
- If a product is reinstalled or devices are connected additionally after installing the purchased product for the first time.
- If a product is reinstalled to move to a different spot or to move to a different house.
- If customer requests instructions on how to use because of another company's product.
- If customer requests instructions on how to use the network or another company's program.
- If customer requests software installation and setup for the product.
- If a service technician removes/cleans dusts or foreign materials inside of the product.
- If customer requests an installation additionally after purchasing a product through home-shopping or online.

A Product damage caused by customer's fault

Product damage caused by customer's mishandling or wrong repair.

If a product damage is caused by;

- External impact or drop.
- Use of supplies or separatly sold product unspecified by Samsung.
- Repair from a person besides an engineer of outsourcing service company or partner of Samsung Electronics Co., Ltd.
- Remodeling or repairing the product by customer.
- Using it with incorrect voltage or non-authorised electrical connections.
- Not following the "cautions" in User Manual.

Others

- If product fails by natural disaster (lightning, fire, earthquake, flood damage, etc).
- If consumable components are all used up (Battery, Toner, Fluorescent lights, Head, Vibrator, Lamp, Filter, Ribbon, etc.)

NOTE

If customer requests a service in case the product has no defect, service fee may be charged. So please read User Manual first.

Correct Disposal

Correct Disposal of This Product (Waste Electrical & Electronic Equipment)

(Applicable in countries with separate collection systems)
This marking on the product, accessories or literature indicates that the product and its electronic accessories (e.g. charger, headset, USB cable) should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.
Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling.
Business users should contact their supplier and check the terms and conditions of the purchase contract. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

Correct disposal of batteries in this product

(Applicable in countries with separate collection systems)
This marking on the battery, manual or packaging indicates that the batteries in this product should not be disposed of with other household waste at the end of their working life. Where marked, the chemical symbols Hg, Cd or Pb indicate that the battery contains mercury, cadmium or lead above the reference levels in EC Directive 2006/66. If batteries are not properly disposed of, these substances can cause harm to human health or the environment.
To protect natural resources and to promote material reuse, please separate batteries from other types of waste and recycle them through your local, free battery return system.

Correct disposal of batteries in this product

(Applicable in countries with separate collection systems)

The marking on the battery, manual or packaging indicates that the battery in this product should not be disposed of with other household waste. Where marked, the chemical symbols Hg, Cd or Pb indicate that the battery contains mercury, cadmium or lead above the reference levels in EC Directive 2006/66.

The battery incorporated in this product is not user replaceable. For information on its replacement, please contact your service provider. Do not attempt to remove the battery or dispose it in a fire. Do not disassemble, crush, or puncture the battery. If you intend to discard the product, the waste collection site will take the appropriate measures for the recycling and treatment of the product, including the battery.

Optimum Picture Quality and Afterimage Burn-in Prevention

Optimum Picture Quality

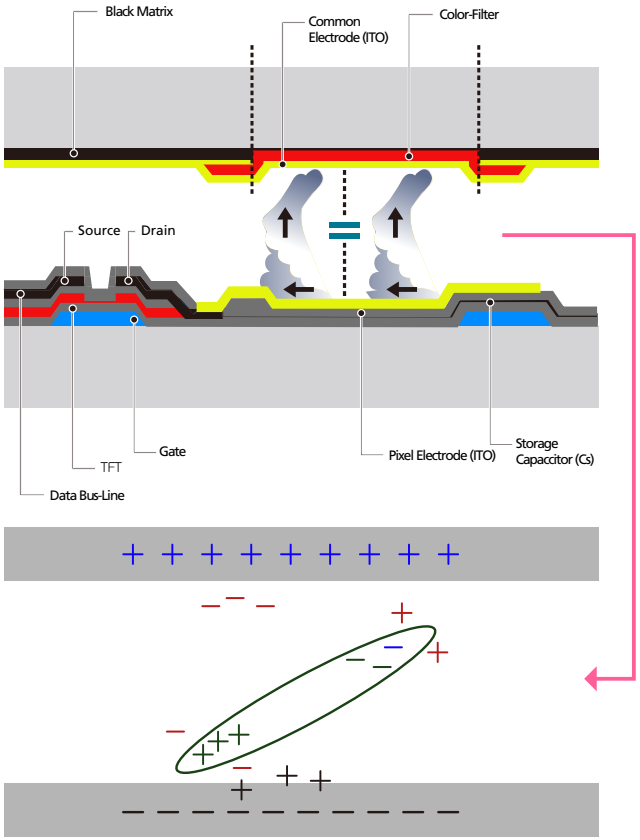
- To enjoy the optimum picture quality, go to Control Panel on your PC and adjust the resolution and refresh rate as follows. The picture quality of TFT-LCDs may degrade if the optimum resolution is not selected.
  - Resolution: 1680 x 1050
  - Vertical frequency (refresh rate): 56 ~ 85 Hz
- Due to the nature of the manufacturing of this product, approximately 1 pixel per million (1ppm) may be brighter or darker on the panel. This does not affect product performance.
  - The number of sub-pixels by panel type: 5,292,000
- Run "Auto Adjustment" to improve the picture quality. If noise is still found even after auto adjustment, adjust Coarse or Fine.
- Leaving the screen fixed on a stationary image for an extended period of time may cause afterimage burn-in or defective pixels.
  - Activate power-saving mode or a dynamic screen saver if you will not be using the product for an extended period of time.
- Unlike CDT monitors, TFT-LCD monitors (due to the nature of the panel) can be set to only one resolution to obtain the optimum picture quality. Therefore, setting a resolution other than the specified resolution may degrade the picture quality. To avoid this, it is recommended that you select the optimum resolution specified for your monitor.

Prevention of Afterimage Burn-in

What is afterimage burn-in?

Afterimage burn-in should not occur when the LCD panel is operating normally. Normal operation refers to a continuously changing video pattern. If the LCD panel displays a fixed pattern for an extended period of time (more than 12 hours), a slight voltage difference may occur between the electrodes in pixels that control the liquid crystals.

Such a voltage difference between electrodes increases with time and makes the liquid crystals thinner. When this occurs, a previous image can remain on the screen when the pattern changes. To prevent this, the accumulated voltage difference should be reduced.



- Powering Off, Screen Saver and Power Saving Mode
  - Power off the product for 4 hours after using it for 20 hours.
  - Power off the product for 2 hours after using it for 12 hours.
  - Go to Display Properties > Power Supply on your PC and set the product to power off as required.
  - Using a screen saver is recommended.
    It is best to use a single-color or moving-image screen saver.
- Regular color Change

Type 1

FLIGHT	TIME
OZ348	20:30
UA102	21:10

Type 2

FLIGHT	TIME
OZ348	20:30
UA102	21:10

NOTE

Use 2 colors

Switch between 2 colors every 30 minutes as shown above.

- Avoid combinations of a text color and background color of contrasting brightness.
  Avoid using grey as it may contribute to afterimage burn-in.
  Avoid using colors of contrasting brightness (black and white; grey).

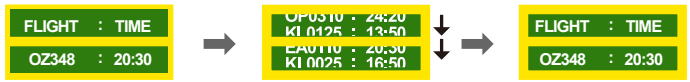
FLIGHT : TIME
OZ348 : 20:30

FLIGHT : TIME
OZ348 : 20:30

- Regular Text color Change
  - Use bright colors of similar brightness.
    Interval: Change text color and background color every 30 minutes

FLIGHT : TIME	FLIGHT : TIME	FLIGHT : TIME	FLIGHT : TIME
OZ348 : 20:30	OZ348 : 20:30	OZ348 : 20:30	OZ348 : 20:30

- Move and change text every 30 minutes as shown below.



[Step 1] [Step 2] [Step 3]

- Regularly display a moving image along with a logo.
  Interval: Display a moving image along with a logo for 60 seconds after using for 4 hours.
- The best way to protect the product from afterimage burn-in is switching the power off or setting the PC or system to run a screen saver when not in use. Also, Warranty service may be limited depending on instruction guide.

Terminology

OSD(On Screen Display)

On screen display (OSD) allows you to customize on-screen settings to optimize the picture quality as required. You can change the screen brightness, tint, size and many other settings using menus displayed on the screen.

Gamma

The Gamma menu adjusts the grey scale that represents middle tones on the screen. Adjusting the brightness brightens the whole screen, but adjusting Gamma only brightens the medium brightness.

Horizontal Frequency

Characters or images displayed on the monitor screen consist of numerous dots (pixels). Pixels are transmitted in horizontal lines, which are then arranged vertically to create an image. The horizontal frequency is measured in kHz and represents how many times horizontal lines per second are transmitted and displayed on the monitor screen. A horizontal frequency of 85 means that the horizontal lines that make up an image are transmitted 85000 times per second. The horizontal frequency is indicated in 85kHz.

Vertical Frequency

One image is made of numerous horizontal lines. The vertical frequency is measured in Hz and represents how many images can be created per second by those horizontal lines. A vertical frequency of 60 means that an image is transmitted 60 times per second. The vertical frequency is also called “refresh rate” and affects screen flicker.

Resolution

Resolution is the number of horizontal pixels and vertical pixels that form a screen. It represents the level of display detail. A higher resolution displays a greater amount of information on the screen and is suitable for performing multiple tasks at the same time. E.g. A resolution of 1920 x 1080 consists of 1920 horizontal pixels (horizontal resolution) and 1080 vertical lines (vertical resolution).

Plug & Play

The Plug & Play feature allows the automatic exchange of information between a monitor and PC to produce an optimum display environment. The monitor uses VESA DDC (international standard) to execute Plug & Play.